Amendments to the Specification

Please amend Paragraphs **[0030]**, **[0033]** and **[0034]** as follows:

[0030] A surface analysis device may be used to characterize the surface of a substrate and any particles that are on the surface of the substrate, such as the number of nanotube assemblies. FIG. 6 shows a surface analysis device 466 that is composed of a scanning array of atomic force microscope (AFM) or scanning tunneling microscope (STM) 468 tips. The AFM ~~AFT~~ tip 469 has a cantilever portion 470 with an associated tip 472. The STM tip has a probe 474 with an associated tip 476. In one embodiment, the tips 468 may be a combination of AFM/STM tips. The individual AFM or STM are joined together to form the scanning array 466, which can scan or read a surface simultaneously, as shown in FIG. 7, to get more information in a shorter time. In one embodiment, the simultaneous scanning includes parallel scanning. The scanning array can be virtually any size or configuration, from a small scanning array with two tips, to a large scanning array with hundreds of tips. In the figure, the scanning array is a 3x3 array. The size of the scanning array may be limited to the ability to control each of the AFM/STM tips independently with a feedback loop, and to a lesser extent on fabrication. The scanning array may be attached to an analyzer 480 with appropriate cabling 482. The analyzer 480 has the ability to analyze the simultaneous scanned information from the scanning array and identify the molecule that the scanned information or signature corresponds to.

[0033] FIG. 9 shows a diagram of selected functional components of a scanning tunneling microscope (STM) 600 used in a STM scanning array. A probe 610, including a tip portion 614 is electrically coupled to the substrate 620 along circuit 602. An electrical characteristic, such as an electrical potential, is measured between the tip portion 614 and the substrate 620. The electrical characteristic is measured by a detector 630 that provides feedback to a linear actuator 640, such as a piezoelectric device. In one embodiment, a distance 604 between the tip portion 614 and the substrate 620 is monitored and adjusted by a feedback loop. In one embodiment, the

actuator 640 is controlled by the detector 630 such that the tip portion 614 maintains a constant distance 604 over the substrate 620 and the movements 642 of the tip portion 614 record surface characteristics along a given scan line. In another embodiment, a constant height of the tip portion 614 is maintained and variation of the electrical characteristics, such as potential, are recorded to provide surface characteristics along a given scan line.

[0034] Referring again to FIG. 7, by ~~b y~~ scanning a substrate 450 with a surface analysis device 466, such as an AFM or STM scanning array, a pattern of nanotube assemblies 432 of the nanocodes 430 is detected. The pattern of the nanocodes 430 indicates a type of a bar code signature of a number of reactive molecules 438 that are associated with the pattern of nanotube assemblies 432. The detected pattern of nanocodes 430 can be related to characteristics of the sample molecule tested, such as a sequence of the sample molecule.